

## The Effectiveness of Stress Inoculation Training (SIT) on Resiliency and Life Expectancy in Infertile Women from Rasht

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### Abstract

The present research aims at studying the effects of SIT on resiliency and life expectancy in infertile women. This is a pilot study whereby using pretest-posttest control group design, all of the infertile women of age between 25-65 who were under treatment in Institute of Infertile Treatment (Mehr) of Rasht Town composed 65 participants of the research. From among them, thirty women have been chosen through simple randomizing and categorized into the control and experimental groups. The experimental group passed 9 sessions of SIT. For collecting data, the Connor-Davidson Resilience Scale (CD-RISC) (2003) and Schneider's life expectancy questionnaire (1991) have been used, where their internal consistency has been reported 0.89 and 0.84, respectively. The obtained data were analyzed using analysis of covariance (ANCOVA). The results showed that there was a significant difference between the control group and experimental group, as the SIT had effects on resiliency and life expectancy in infertile women, causing an increase in the level of resiliency and life expectancy.

**Keywords:** SIT, Resiliency, Life Expectancy, Infertile Women

### Introduction

Women naturally tend to have children. Being a mother is one of their most basic needs. This affects many of their social relations and those incapable of childbearing would face many personal and social issues propelling them to an uncommon life (Sharifian & Sadeghian, 2012). The researches show that 10-15 percent of the couples at fertility ages face such problems (Spiroff & Fritz, 2005) which bring a wide range of psychological traumas including decreased life quality, self-esteem, and sexual, sensual and social dissatisfaction, and increased stress, anxious distress, anger, inferiority sense, inefficiency sense, sexual dysfunction and marital problems (Watkins & Baldo, 2004). All around the world and in all cultures, infertility is known as a stressful and critical experience threatening personal, marital, family and social stability, so that WHO lists infertility as one of the public health problems throughout the world (Hasanzadeh, Tarkhan & Tagizadeh, 2013).

In fact, infertility is one of the most complex issues of life, which is psychologically threatening and challenging. Therefore, many of the authors compared the psychological consequences of infertility to public grief reactions. Infertile couples not only face with physical problems but also experience psychological symptoms including anxiety, problems in interpersonal relations, failure, oppressed anger and aggression, dissatisfaction in interpersonal relations, inferiority sense, isolation, unconscious feeling of guilt, depression, jealousy, seclusion, decreased self-esteem, physical problems and obsession. In addition, personality incompatibility is significant in infertile couples, especially those experiencing failure in treatment (Hamid, 2011).

Various researchers have different viewpoints regarding infertility effects on couples. Some believe that infertility as an emotional impact may affect communicative, professional and sexual

skills of people. As most of the tests and treatments are prescribed for women, they may develop more physical symptoms, anxiety and depression more than their husbands (Nourani et al., 2011). Recently, researches have proved that employing new methods of psychotherapy used in infertility treatments may cause a decrease in the psychological symptoms and concerns in infertile women and assist infertile couples to receive infertility treatment, leading to a decrease in their problems and concerns caused by disappointment over treatment effectiveness and an increase in the resiliency level. Resiliency against stress means the individual's positive capacity for compatibility with stress and disaster, considered a psychological competence in people. The researchers assert that resiliency against stress may be the capability to defeat fear and also the tendency towards rapid and effective fear subsiding after the occurrence of a traumatic event, completed though resorting to supporting factors (Khodabakhshi et al., 2013). Resiliency against stress has a special role especially in the areas of developmental psychology, family psychology and mental wellbeing (Cambel et al., 2006).

Resiliency as a process is defined as the capability or the consequence of successful compatibility despite of threatening conditions. The related-literature review shows that the people resilient against stress have generally the internal control source, i.e. they can take the responsibility for their conditions and affairs, enjoy positive self-knowledge and are optimistic towards life. These people are of a strong personality and higher psychological and physical health compared to those impatient and intolerant towards life stresses (Khodabakhshi et al., 2013; Kumpfer, 1999).

I would confirm the mediating role of resiliency variable for compatible consequences, so that the effects of improving personal resilience competence consist of decreased mental-emotional problems, and increased mental health and personal life satisfaction (Seligman et al., 2005). In a research adopting the strategies of improving welfare and resilience in clinical population, showed that these practices would reduce depression symptoms. On the other hand, life expectancy aborning is one of the most important factors, revealing cultural, social, economic and health status of any society. Also, this index may be useful in evaluating the delivered services. Using this index as well as the other related indices, i.e. per capita income, GDP and literacy rate, the WHO lists human development index as one of evaluation indices for current societies (Ferehstehnezhad et al., 2008).

Many researchers suppose various factors such as social class, gender, life situation, etc. to be effective on life expectancy. In their research aimed at studying the effectiveness of hope-therapy-based group therapy on the variables of hope, life concept, self-esteem, depression and distress in the clients of a psychological clinic, Cheavens et al. (2005) found that mentioned involvement would bring them increased hope, life concept, and self-esteem and also decreased depression and distress. In the research done by Chan (2005) into depressed adolescents suffering from chronic medical problems, it was found that interpersonal psychotherapy education not only alleviates depression symptoms but also increases welfare, life expectancy and psychological wellbeing in adolescents.

In addition, aiming at studying the effectiveness of hope-therapy-based group therapy on increased life expectancy in the women with breast cancer, Bijari et al. (2009) conducted an applied semi-experimental research, employing unequal control group design. The results of t-test statistical analysis show that hope-therapy-based group therapy, compared to the control group, would make a significant increase in life expectancy and decrease in depression in the women with breast cancer. From the literature of the researches on life expectancy, one conducted by Pasha and Amini (2010) is an example which studies the effect of reality therapy on life expectancy and anxiety in martyrs' wives and its results showed that reality therapy gave a rise in life expectancy and caused decreased anxiety in martyrs' wives in the experimental group compared to those of the control group.

According to the studies, infertility stress defined as a set of syndromes proceeding infertility is similar to most of the post-traumatic stress disorders (PTSDs), evident in the thoughts and emotions inflicted by infertility and the efforts to get rid of them. Despite of the beliefs hold by many people, regarding the role of the couple itself in emergence of infertility, some list stress as a cause of infertility. The relation between stress and infertility is often a vicious cycle and each may intensify the other. Infertile couples blaming themselves as the cause of infertility would face an increased stress and consequently the problem gets more complicated (Alizadeh et al., 2005). Since no one is immune to psychological disorders in their lives and hard-to-predict sever stressors always threaten mental health, resilience against stress is an important factor possibly different from person to person (Khalatbari et al., 2010).

The researchers have proved that stress inoculation training (SIT) is one of the methods important in alleviating stress and anxiety. SIT is a form of cognitive restructuring, proposed by Meichenbaum et al. The effectiveness of the therapy method on relieving anxiety and stress has been proven. SIT is a therapy model including semi-organized training program which is clinically sensitive. This training has been design to develop coping skills which are effective on solving not only current personal problems, but also future problems. It seems that this method affects individual's dysfunctional attitude and problem solving skills. Many studies proved the effectiveness of coping methods on individual's compatibility. Abolqasemi et al. (2012), for example, studied the effectiveness of SIT on dysfunctional attitudes and social problem-solving skills in the patients with breast cancer and the results of repeated measures analysis of variance (rANOVA) revealed that SIT positively affects dysfunctional attitudes and social problem-solving skills in the patients with breast cancer.

Also, Mahmoudi, Abolqasemi and Darvishi Kerzri (2012) aiming at determining the effectiveness of SIT on reducing feeling of stress in the patients with type 2 diabetes in Sari town found that the level of mental pressure had been reduced significantly after the therapy. Therefore, the patients with diabetes can use the methods of psychological therapies as supplements to the drug treatments in order to reduce mental pressure. The research by Redon et al. (2005) is other example in which satisfaction and psychological-social compatibility of 31 psychological patients rolling in a 16-week SIT program have been examined. Subsequent to passing the program, there was a significant reduction in depression syndromes and the disorder in social relations (as cited by Qasemabadi, 2008). Therefore, considering the aforementioned discussions and the lack of related appropriate studies, acquiring knowledge about stress inoculation in infertile women, resilience level and life expectancy is of a high importance. This study tests whether SIT affects resilience and life expectancy in infertile women.

## **Methodology**

### ***Statistical Population and Sampling Method***

The statistical population of the present research includes 65 women whose infertility has been proved according to the specialized tests and their doctor's viewpoint, paying a visit to Mehr Institute of Rasht for Infertility Treatment from June to August, 2013. From among those women, 30 persons has been selected, as the statistical population, through simple randomization, later categorized into two equal groups of control and experiment, while the experimental group received SIT.

### ***Data Collection Tools***

1) *The Connor-Davidson Resilience Scale (CD-RISC)* including 25 questions, prepared by Connor and Davidson (2003) for measuring the power for dealing with pressure and threat, measure resilience structure using a 5-degree Likert scale in which the range of grading is from 25-125, the

most acquired point 100 and the cut-off point 50. Mohammadi (2005) for the first time ever translated the questionnaire into Persian and estimated its reliability. He employed the scale for 248 persons and calculated its reliability up to 0.89 using Cronbach's Alpha internal consistency method and its validity 0.89 using factor analysis method (as cited by Khodabakhsi et al., 2013).

2) *Life Expectancy Questionnaire* prepared by Schneider et al. (1991) for measuring hope and conducted as a self-assessment include 12 statements with the range of 8-32 and the cut-off point 22. The statements of the questionnaire include 4 statements for measuring agency thinking, 4 for strategic thinking and 4 as deviant statements. So, it consists of two sub-scales: agency and strategy. Many researchers have supported the validity and reliability of the questionnaire as a measuring scale. The internal consistency range of the test has been reported 0.74-0.84 and the validity of test-retest 0.80, while for the time period beyond 8-10 weeks, those figures would be higher. The internal consistency for the agent sub-scale is 0.71-0.76 and for the strategy subscale 0.96-0.80 (Aqabaqeri et al., 2012).

### ***Research Methodology***

After selecting the research's statistical population and determining the control and experimental groups, the people under experiment participated 9 one-and-a-half-hour sessions once a week. In the outset, the rules and regulations of participating the session were explained for the participants, e.g. the absence threshold was determined up to two sessions, beyond which the person would be eliminated from the sample. The SIT was provided for the groups in three levels, during one-and-a-half-hour session hold once for nine weeks, while the control group only participated the introductory and closing evaluation sessions.

*First Session:* Introduction and meeting other group members; reflection of understanding, objectives and expectations of the group members; introduction of the laws; establishment a cooperative relation; explanation of the logic of selecting members and determination of a sample of tasks;

*Second Session:* Presentation of the session's objectives; discussion over the mental pressure caused by professions; explanation of the role of thoughts and beliefs in mental pressure; discussion over the symptoms of mental pressure; introduction of Albert Ellis' A-B-C method; and implementation of imagery;

*Third Session:* Review of the last session's topics and discussions; discussion of the consequences and problems related to professional mental pressure and its effect on professional burnout and dissatisfaction; muscle relaxation training and assignment of homework;

*Session Four:* Review of the last session's topics and discussions; review of the assigned homework; training the role of thoughts in emotions and behavior; explanation of Beck cognitive therapy; implementation of cognitive restructuring technique using Beck approach and assignment of homework;

*Session Five:* Review of the last session's topics and discussions; review of the assigned homework; combating recorded automatic negative thoughts and assignment of homework;

*Session Six:* Review of the last session's topics and discussions; review of the assigned homework; discussion of the efficacy of the mixed method of muscle relaxation and combating against automatic thoughts; training problem solving and assignment of homework;

*Session Seven:* Review of the last session's topics and discussions; review of the assigned homework; implementation of thought-stopping technique; imagery and assignment of homework;

*Session Eight:* Review of the last session's topics and discussions; review of the assigned homework; implementation of positive self-assertion technique and its training and mixing it with other presented techniques; and assignment of the homework;

*Session Nine:* Review of the last session's topics and discussions; review of the assigned homework; review of the effectiveness of the presented techniques; improvement of employing techniques by the members and its continuation; retest and session closure.

In addition, two first sessions were allocated to the first phase of SIT (conceptualization), the next session to second phase of SIT (implementation and prevention) and the last two sessions to the third phase of SIT.

## Results

As mentioned, the objective of the present research is the study of effectiveness of stress inoculation on resilience and life expectancy in the infertile women from Rasht. The results indicated by the research data have been used to test whether stress inoculation affects resilience and life expectancy, using descriptive statistics methods (mean and standard deviation) and inferential statistics of multivariate analysis of covariance (MANCOVA). Before applying MANCOVA, the analysis of the relation between dependant variables showed that there was a linear relation between them. In addition, the analysis of the Box results illustrated that this test were not significant ( $p=0.275$ ,  $F(3,141120.000)=0.723$ ,  $\text{BoxsM}=4.202$ ); therefore, the assumption of equality of variance-covariance matrixes is not rejected and according to the results of Levene's test (Table 1) and non-significance of dependant variables, the equality of variances is achieved and administering MANCOVA test is possible.

**Table 1 Statistical Characteristics of Dependant Variables in Experimental and Control Group**

Control		Experimental Group		Variables
SD	Mean	SD	Mean	
1.589	21.33	1.988	27.67	Life Expectancy
10.464	60.73	10.888	75.13	Resilience

The figures of the above table show that there is a difference between the mean of the control group and that of the experimental group in dependant variables and these differences in the both variables are useful for the experimental group.

**Table 2 MANCOVA F-statistic for Size of Mixed Variable**

Eta	Significance Level	F(25,2)	Value	Source
0.951	0.00	242.483	0.049	Mixed Variable (Group)

Note: Multivariate F-ratio has been obtained using Wilks' Lambada test.

Eta squared figures in the table 2 are a part of variance, which is related to the new mixed variable. The general rule is that if this figure is higher than 0.14, the effect size is high. In the above table, this figure is 0.951 for the new mixed variable, which illustrates the high effect size. Also, the results of Wilk's Lambada test are significant for the mixed variable and the significance in the new mixed variable shows that the participants are different in the two groups and the mean of the groups is significant under the effect of the independent variable. The results of Table 2 illustrate that there is a significant difference between the experimental group affected by the SIT and the control group receiving no training ( $\text{ETA}=0.951$ ;  $P=0.000$ ;  $F(2, 25)=242/483$ ); according to the adjusted means presented in Table 3, this difference is useful for the experimental group.



**Table 3: Adjusted Mean, SD and the Results of ANOVA for Components of Dependant Variables**

Covariance			Control Group		Experimental Group		Variable
ETA	p	F(26,1)	Standard Error	Mean	Standard Error	Mean	
.887	.000	204.119	.315	21.309 <sup>a</sup>	.315	27.691 <sup>a</sup>	Life Expectancy
.883	.000	195.807	.789	60.113 <sup>a</sup>	.789	75.753 <sup>a</sup>	Resilience

In the above table, the adjusted means of the components of the dependant variables are given and the effect of the auxiliary random variables is eliminated statistically. These figures show that the mean of the experimental group is higher than that of the control group. In addition, in the table, ANCOVA is calculated using two dependant variables. Through dividing 0.05 by 2, the Bonferroni correction has been implemented; therefore, the significance level is less than 0.25 and this is true about the two variables. The figure of Eta suggests that almost 89 percent of the variance of life expectancy variable and 88 percent of resilience variable have been calculated for the group variable ( $F(26,1)=204/119$ ,  $P=0.000$ ,  $Eta=0.887$ ). In addition, the results of the covariance table show that there is a significant difference between the two groups in resilience variable ( $F(26,1)=195807$ ,  $P=0.000$ ,  $Eta=0.883$ ).

### Discussion and Conclusion

Testing the main question, “is stress inoculation effective on resilience and life expectancy in infertile women?”, showed that there was a significant difference between the experimental group passing the SIT and the control group receiving no training, and considering the adjusted means, this difference was useful for the experimental group. Namely, the SIT has been effective on resilience and life expectancy in infertile women, causing an increases level of the resilience and life expectancy. The obtained results are parallel to those of the almost similar conducted researches cited in the literature review, including Mahmoudi, Aboqasemi and Darwishi (2012), Abolqasemi et al. (2012), Khalatbari & Bahari (2010), Redon et al. (2005), Snyder (2005), Chan (2005) and Bijari et al. (2009).

It can be explained that SIT techniques including self-assertion, problem solving skill, muscle relaxation, role taking, self-control, self-reinforcement and positive self-talk cause a reduction in the collateral consequences of mental pressure inflicted by interpersonal situation and threatening situations such as systolic and diastolic blood pressure, since SIT helps the people to recognize their inappropriate illogical beliefs on one hand and to obstacle their problems and to use compatible, creative and problem-solving strategies on the other hand. When those people solve their problems using compatible methods, their self-efficacy, self-confidence and self-assurance would rise and this *per se* reduces the fear of facing the problem, improves their dreams and alleviate their skills of problem solving and critical thinking (Tarkhan, Saffarinia & Khoshsima, 2012). All of these factors may lead people to face successfully with challenges. i.e. they increase the people’s tenacity and improve the level of life expectancy. Since the people’s cognitive vulnerability has an inference with the stressful life situation, they are inclined to form negative interpretations regarding the future and self-valuation and these changes may cause disappointment in achieving their objectives (Aqayousefi et al., 2010). Increasing the skill of combating stressful situations, the SIT improves life expectancy. As no one is immune to mental vulnerability in their

lives, the highly stressful factors usually not predictable may threaten mental health and human beings do not react against the stressful situations in the same way. The researches have proved that a cause of those different reactions is resilience. Resilience is defined as the process of capacity of successful compatibility in the challenging and threatening situation, given the people's innate capacity for answering, surviving and growing normally in the stressful situations. The research works suggest that resilience is a quality changing from person to person, probably developing or reducing during the time. In addition, women are more prone to change than men (Khalatbari & Bahari, 2010).

The particular behavioral skills and procedures enable the people to act more effectively and with more care, to solve the problems more effectively and efficiently and to adjust the state of their emotions, attitudes and beliefs. SIT may make a decrease in the people's dysfunctional attitudes preparing the ground for vulnerability, since dysfunctional attitudes and wrong beliefs regarding infertility are an important factor in increasing the stress caused by infertility and considering therapy to be useless. SIT is a cognitive behavioral involvement, increasing the awareness of the people. Through producing psychological antibodies (coping skills), this training may increase resilience and impose them to the stimulus in order to have enough power to tolerate the stresses caused by infertility and clinical consequences, while those stresses are not that high and severe to kill the patient. Although SIT would not thoroughly eliminate anxiety and turmoil in the patient's life, this method facilitates learning adaptive methods in stressful situations and accelerates their recovery (Abolqasemi et al, 2012).

By learning stress inculcation methods, the amount of tenacity in facing life stress increases. In spite of adverse circumstance, the tenacious people hope to face successfully and effectively with the challenges, find meaning in the disturbing experiences and believe in their role as a valuable and important person. Being of a tenacious personality (obligation, inhibition and combating competence) is a symptom of mental health and the person not mentally healthy would feel desperate and depressed in the important events of their lives (Zahed Babolan, Qasempour & Hasanzadeh, 2012); therefore, it can be stated that SIT lead to an increase in life expectancy level through increasing tenacity.

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